REMARKS

Applicants note that all cancellations and amendments presented herein are without acquiescing to any of the Examiner's arguments or rejections, and solely for the purpose of expediting the patent application process in a manner consistent with the PTO's Patent Business Goals (PBG),[1] and without waiving the right to prosecute the cancelled claims (or similar claims) in the future.

In the Final Office Action dated 11/8/05, the Examiner made several rejections. Each of the rejections is listed below in the order in which they are herein addressed.

I) Claims 10 is rejected under 35 U.S.C. 101 as allegedly lacking utility;

II) Claims 12-14 are rejected under 35 U.S.C. 112, second paragraph as allegedly being indefinite;

III) Claims 1 and 4-15 are rejected under 35 U.S.C. 112, first paragraph as allegedly lacking enablement;

IV) Claims 1, 5, 6, and 14 are rejected under 35 U.S.C. 102(a) as allegedly being anticipated by Gille et al. (J. Biol. Sci. 278:12672 [2003]; hereinafter Gille);

V) Claims 1-9 and 11-15 are rejected under 35 U.S.C. 103(a) as allegedly being obvious in light of Herr (U.S. Patent application 2002/0064849; hereinafter Herr) in view of Gille; and

VIII) Claims 1-5, 6, 7, and 11-15 are rejected under 35 U.S.C. 103(a) as allegedly being obvious in light of Herr in view of Rossomando et al. (PNAS 78:2278 1981; hereinafter Rossomando) further in view of McEwan (Analytical Biochemistry, 281:109 [2001]; hereinafter McEwan).

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[1] 65 Fed. Reg. 54603 (Sept., 8, 2000).

I. The Claims are Supported by a Utility

The Examiner has rejected Claims 10 and 19 under 35 U.S.C. 101 as allegedly lacking utility (Office Action, pg. 2). The Examiner states "Given that there are at least two types of nucleotide cyclases with two distinct substrate specificities, it is not clear how a mutant nucleotide cyclase having altered substrate specificity could be of real world use in the assay as it is not clear how a compound identified by the assay has any use." The Applicants respectfully disagree. For Example, as the Examiner has stated, "the modulation identified has no real world use beyond studying the properties of the mutant cyclase enzyme itself...." (Office Action, pg. 3). Such a use provides a valid utility for the enzyme. For example, identification of compounds that alter the activity of the mutant, but not the wild type enzyme, find use in the study of substrate specificity and structure of the wild type enzyme. Such information is useful in drug design and diagnostic assays.

The Patent Office has specifically stated that utility as a research tool can provide utility under 35 U.S.C. 101:

> "Many research tools such as gas chromatographs, screening assays, and nucleotide sequencing techniques have a clear, specific and unquestionable utility (e.g., they are useful in analyzing compounds)." (M.P.E.P. 2107.01).

The Applicants submit that the specification clearly defines a specific utility for the enzyme of Claims 10 and 19 (See Example 1). The Applicants submit the Examiner has improperly interpreted the law and the Patent Office's guidelines in rejecting the claims under 35 U.S.C. 101. As such, the Applicants respectfully request that the rejection be withdrawn.

II. The Claims are not Indefinite

The Examiner has rejected Claims 12-14 under 35 U.S.C. 112, second paragraph as allegedly being indefinite (Office Action, pg. 3) for the recitation of a compound "suspected of being an activator, ligand or inhibitor.". In particular, the Examiner states "A screening method wherein the compound is an potential activator, ligand or inhibitor is encompassed in claim 1. However claim 12-14 drawn to a compound suspected of being an activator, ligand or inhibitor without clarifying the criteria for suspecting any particular compound of being a suspected activator, ligand or inhibitor." (Office Action,

pg. 4). The Applicants respectfully disagree and submit that the claims are definite as written. Nonetheless, in order to further the business interests of the Applicants and while reserving the right to prosecute the original (or similar) claims in the future, the Applicants have amended Claims 12-14 to refer to potential activators, ligands and inhibitors. As the Examiner has indicated that Claim 1 is drawn to such elements (see above), the Applicants respectfully submit that the term potential is definite and respectfully request that the rejection be withdrawn.

III. The Claims are Enabled

The Examiner has rejected Claims 1 and 4-15 under 35 U.S.C. 112, first paragraph as allegedly lacking enablement (Office Action, pg. 4). In particular, the Examiner states: "Claim 1 is incomplete without a control reaction..." (Office Action, pg. 4). The Applicants respectfully disagree and submit that the claims are enabled. Nonetheless, in order to further the business interests of the Applicants and while reserving the right to prosecute the original (or similar) claims in the future, the Applicants have amended Claim 1 to include the element of comparing the level of fluorescence in the presence of the test compound with the level in the absence of the test compound. As such, the claims now include a control reaction. The Examiner has admitted that claims with a control reaction are enabled (Office Action, pg. 4-5). Accordingly, the rejection should be withdrawn.

IV. The Claims are not Anticipated by Gille

The Examiner has rejected Claims 1, 5, 6, and 14 under 35 U.S.C. 102(a) as allegedly being anticipated by Gille (Office Action, pg. 6). The Applicants respectfully disagree. In particular, the Applicants submit that Gille does not teach all of the elements of the claims are required for rejection under 35 U.S.C. 102(a). As described above, the claims have been amended to include the element of comparing the level of fluorescence in the presence of the test compound with the level in the absence of the test compound. In particular, Gille does not teach the claim elements of measuring the level of fluorescence of said fluoresently labeled substrate or comparing said level of fluorescence of said fluorescently labeled substrate in the presence of said test compound

to the level of said fluorescence in the absense of said test compound. As such, the rejection should be withdrawn.

V. The Claims are Non-Obvious

The Examiner has issued two rejections under 35 U.S.C. 103 (each of the rejections is discussed in further detail below). The Applicants respectfully disagree with the rejections and submit that the examiner has failed to provide a prima facie case of obviousness. The combination of references referred to by the Examiner fails to provide a *prima facie* showing of obviousness as required by § 2143 of the Manual of Patent Examining Procedure (MPEP).

A. Claim 1-9, 11-15 are not obvious

The Examiner has rejected Claims 1-9 and 11-15 under 35 U.S.C. 103(a) as allegedly being obvious in light of Herr in view of Gille (Office Action, pg. 8). The Applicants respectfully disagree and submit that the combination of references cited by the Examiner does not teach all of the elements of the claims as required for rejection under 35 U.S.C. 103. In particular, the Applicants submit that neither Gille nor Herr, alone or in combination, teach the claim elements of measuring the level of fluorescence of a fluorescent nucleotide cyclase substrate. Nor do Gill or Herr, alone or in combination, teach the claim element of comparing the level of fluorescence in the presence of the test compound with the level in the absence of the test compound. As such, the Applicants submit that the Examiner has not demonstrated a prima facie case of obviousness and respectfully request that the rejection be withdrawn.

B. Claims 1-7 and 11-15 are Non-Obvious

The Examiner has rejected Claims 1-7 and 11-15 under 35 U.S.C. 103(a) as allegedly being obvious in light of Herr in view of Rossomando and further in view of McEwan (Office Action, pg. 9). The Applicants respectfully disagree with the rejection. Nonetheless, in order to further the business interests of the Applicants and while reserving the right to prosecute the original (or similar) claims in the future, the

Applicants have amended Claim 1 to refer to the measurement of fluorescence **over time**. Unlike the present invention, which provides a real time fluorescence assay that requires no additional purification steps prior to fluorescence detection (See e.g., Examples 1-5 of the present specification), the assay of Rossomando is an end point assay that requires a purification step prior to analysis (See e.g., Rossomando, pg. 2279, column 1, experimental procedures, "Assay for Adenylate Cyclase Activity"). As such, the Applicants submit that neither Herr nor Rossomanod nor McEwan, alone or in combination, teach all of the elements of the claims as required for rejection under 35 U.S.C. 103 (a) and respectfully request that the rejection be withdrawn.

CONCLUSION

If a telephone interview would aid in the prosecution of this application, the Examiner is encouraged to call the undersigned collect at (618) 218-6900.

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